

WHAT IS CLAIMED IS:

1. A double suction-type sucker which suction-adheres a printing plate, a protective sheet including a predetermined porosity being interposed between the sucker and the printing plate, the sucker comprising:

a mounting base portion;

a main body portion disposed downward of the mounting base portion;

a skirt portion attached at a lower portion of the main body portion and capable of closely corresponding with the protective sheet for suction-adherence of the printing plate;
and

a joining structure which joins the mounting portion with the main body portion, the joining structure converting a moment which acts on the main body portion and the skirt portion during a suction-adherence operation to two intersecting force components for reducing deformation of the main body portion and preventing relative movement between the protective sheet and the printing plate.

2. The sucker of claim 1, wherein the main body portion comprises stiffness.

3. The sucker of claim 1, wherein the skirt portion comprises resilience.

4. The sucker of claim 1, wherein the skirt portion comprises an outer periphery capable of closely corresponding with the protective sheet during the suction-adherence operation.

5. The sucker of claim 1, wherein the joining structure comprises a spring.

6. The sucker of claim 1, wherein the joining structure comprises a tubular body fabricated of rubber.
7. The sucker of claim 1, wherein the joining structure comprises a support shaft, a stopper and a spring.
8. A double suction-type sucker which suction-adheres a printing plate, a protective sheet including a predetermined porosity being interposed between the sucker and the printing plate, the sucker comprising:
- a main body portion integrally including a mounting base portion and including a suction-adherence surface; and
 - a skirt portion attached at the suction-adherence surface side of the main body portion and capable of closely corresponding with the protective sheet for suction-adherence of the printing plate,
- wherein the main body portion includes a predetermined stiffness for reducing deformation of the main body portion, which deformation is based on an external force that acts on the main body portion and the skirt portion during a suction-adherence operation, and preventing relative movement between the protective sheet and the printing plate.
9. The sucker of claim 8, wherein, if
- a resilient force in the skirt portion in a suction direction, which intersects the suction-adherence surface, is E_1 ,
 - a resilient force in the skirt portion in a direction parallel to the suction-adherence surface is E_2 ,
- a total component in the suction direction of a suction force during the suction-adherence

operation is P_1 , and

a total component of this suction force parallel to the suction-adherence surface is P_2 , then

$$E_1 < P_1 \text{ and } E_2 > P_2.$$

10. The sucker of claim 8, wherein a gap t between the suction-adherence surface and the protective sheet during the suction-adherence operation is set in accordance with a resilient force in the skirt portion, a coefficient of friction between the skirt portion and the protective sheet, and stiffness of the protective sheet,

and the gap t is set to a range such that the protective sheet will substantially not be drawn in toward the suction-adherence surface at a moment in time of suction-adherence of the protective sheet.

11. The sucker of claim 8, wherein a gap t between the suction-adherence surface and the protective sheet during the suction-adherence operation satisfies: $0 \leq t \leq 0.5 \text{ mm}$.

12. The sucker of claim 8, wherein the skirt portion comprises a predetermined resilience such that, during the suction-adherence operation, a surface of the skirt portion that closely corresponds with the protective sheet is substantially parallel to the suction-adherence surface of the main body portion.

13. The sucker of claim 8, wherein the suction-adherence surface comprises a surface including numerous minute protrusions and indentations.

14. The sucker of claim 8, wherein the skirt portion comprises at least one of a sponge and a brush.

15. The sucker of claim 8, wherein the skirt portion comprises an outer periphery capable of closely corresponding with the protective sheet during the suction-adherence operation.